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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/553,502

08/25/2006

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10191-3988

7436

26646 7590 11/12/2008
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EXAMINER

OLSEN, LIN B

ART UNIT

PAPER NUMBER

3661

MAIL DATE

DELIVERY MODE

11/12/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/553,502	Applicant(s) MEISSNER, PETER	
	Examiner LIN B. OLSEN	Art Unit 3661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 11-19 is/are rejected.
- 7) ☐ Claim(s) 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 August 2008 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Drawings

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because none of the blocks in Figs 1 and 3 are labeled, and as such the drawings do not aid in understanding the invention. Further, any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). The drawing of Fig. 2 is objected to under 37 CFR 1.83(a) because it fails to show any reference numbers which could be used in the specification to properly understand the flow chart illustrated. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are

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not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim refers to “impact processes” which is not defined. Further the claim recites that the impact processes are “taken into consideration in determining one of the value for the impact severity of the control unit and the predefined threshold value” with no definition of “taken into consideration”.

Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. Evidence that claim 14 fail(s) to correspond in scope with that which applicant(s) regard as the invention can be found in the specification at paragraph [16] which recites “the absolute value of the predefined threshold value is lowered with increasing operating time of the safety device”. In the claim, applicant has stated “lowering the predefined threshold value with an increasing operating time of the safety device.” Since the control unit is monitoring acceleration, which is negative in the case of an impact, there is significance

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to the difference between a value and the absolute value and this difference indicates that the invention is different from what is defined in the claim(s).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims **11-13, 16-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,175,794 to Muraoka (Muraoka) in view of U.S. Patent Pub. No. 2002/0169535 to Imai et al. (Imai). Muraoka describes a control unit for an air bag that checks its components for failures as well as using the acceleration from a sensor measured against a threshold to determine the severity of a crash. An error indication is provided to the operator if either a component fails or the severity indicator has exceeded a threshold. Imai characterizes impact severity using three sensors to modify

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the thresholds used in declaring a collision. Imai too reports the failure of sensors as well as incorporating the fact of their failure into the collision detection algorithm.

Regarding independent **claim 11**, “A method for monitoring a performance reliability of at least one of a control unit and at least one sensor of a safety device for protecting a vehicle occupant, comprising the steps:

a) recording a value corresponding to at least one of a negative acceleration, a velocity, and a pressure, caused by an impact;” – See Muraoka Fig. 1, G sensor fed through A/D converter for storing in memory.

“b) deriving a value for an impact severity from the recorded value

“c) comparing a value for the impact severity to a predefined threshold value; and” – Muraoka uses the output from the G sensor as an indication of impact severity (col. 3, lines 19-24) and decides whether to ignite the device. Muraoka does not use the term threshold, but Imai specifically characterizes the impact severity (see Imai Abstract) and selects the threshold to be used in determining a collision based on that characterization. (Imai Paragraph 25). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the severity levels and multiple thresholds of Imai in the detection program incorporated in the CPU of Muraoka to improve the reliability of collision detection using prior art elements according to known methods that yield predictable results as taught by

“d) outputting an error-function signal in the event that the value for the impact severity exceeds the predefined threshold value, the error-function signal indicating that

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a proper functioning can no longer be ensured for the at least one of the control unit and the at least one sensor.” – Both Muraoka and Imai activate an error function signal (indicator lamp) when the impact severity indicator has exceeded the crash threshold. In addition they each have activated that function when the sensor has been reported as failing.

Regarding **claim 12**, which is dependent on claim 11, further comprising:

“calculating the value for the impact severity for each of the at least one of the control unit and the at least one sensor; and

comparing each calculated value to a respective predefined threshold value for each of the at least one of the control unit and the at least one sensor.” – Imai describes determining impact severity using two front sensors and a floor sensor as illustrated in Fig. 3. The impact severity from the front sensors is termed the mode of the crash and determines the thresholds used while the impact severity of the floor sensor as determined by the control system is measured against the thresholds. (Paragraphs 33-38).

Regarding **claim 13**, which is dependent on claim 11, “wherein information from a plurality of impact processes is taken into consideration in determining one of the value for the impact severity of the control unit and the predefined threshold value associated with the value for the impact severity.” In Fig. 5 of Imai, the graph shows the data obtained from a vehicle at the time of different types of collisions. These collisions would have to be from multiple discrete collisions in order to not have compromised

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results. Therefore the thresholds determined from this data is from multiple impact processes.

Regarding **claim 16**, which is dependent on claim 11, further comprising:

“implementing a read-out and an analysis of an output error-function signal by at least one of the control unit and a service facility testing device.” – In Muraoka, the indication of the error function is recorded in the EE-PROM (Fig 1, and Fig. 4) which can be read out, especially by the Outside CU 5 through the communications port.

Regarding independent **claim 17**, A diagnostic device for monitoring a performance reliability of at least one of a control unit and at least one sensor of a safety device for protecting a vehicle occupant, comprising:

“an arrangement for coupling to the at least one sensor of the safety device to record an impact, the diagnostic device being arranged in a motor vehicle together with the control unit and the at least one sensor;” – See Muraoka Fig. 1, G sensor fed through A/D converter for storing in memory.

“a comparator that provides at least one predefined threshold value for a proper functioning of the at least one of the control unit and the at least one sensor, the comparator comparing a value for an impact severity derived from the impact to the predefined threshold value; and” – Muraoka uses the output from the G sensor as an indication of impact severity (col. 3, lines 19-24) and decides whether to ignite the device. Muraoka does not use the term threshold, but Imai specifically characterizes

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the impact severity (see Imai Abstract) and selects the threshold to be used in determining a collision based on that characterization. (Imai Paragraph 25).

“an output device that outputs an error-function signal in the event that the value for the impact severity exceeds the at least one predefined threshold value, the error-function signal indicating that a future proper functioning is no longer ensured for the at least one of the control unit and the at least one sensor.” – Both Muraoka and Imai activate an error function signal (indicator lamp) when the impact severity indicator has exceeded the crash threshold. In addition they each have activated that function when the sensor has been reported as failing.

Regarding **claim 18**, which is dependent on claim 17, “wherein a functionality of the diagnostic device is implemented in the control unit, either entirely or partially.” – In Muraoka, the functionality of the diagnostic device is implemented in the inside CU 3 (Fig. 3), while in Imai the severity determining system of Fig. 1 has a block diagram as shown in Fig. 3 including the problem detection unit 34.

Regarding **claim 19**, which is dependent on claim 17, “wherein, for each one of the at least one of the control unit and the at least one sensor, a respective threshold value is predefined that is typical for one of the control unit and the at least one sensor.” – Imai shows in Figs. 4 and 6 the threshold values that are predetermined and saved in memory for use in defining a crash. The selection of high map and low map is dependent of the front sensor thresholds.

Claims **14-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Muraoka/Imai as applied to claim 11 above, and further in view of U.S. Patent No. 6,312,013 to Baur et al. (Baur). Baur is concerned with updating the trigger thresholds of safety devices as they age or other conditions affect their condition.

Regarding **claim 14**, which is dependent on claim 11, further comprising: "lowering the predefined threshold value with an increasing operating time of the safety device." - Neither Muraoka nor Imai modifies the threshold values dependent on operating time. Baur however, updates the threshold based on length of utilization (Baur abstract, col. 2, 37-40). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the known technique of modifying the threshold into the Muraoka/Imai combination to improve these similar devices in the same way Baur improved its sensitivity to collisions.

Regarding **claim 15**, which is dependent on claim 11, further comprising: determining the predefined threshold value from at least one of a crash test and one of calculations and findings derived therefrom. While there are indications that Imai derived its thresholds from crash tests and calculations based thereon, (Figs. 4 and 5), in Baur it is explicit that the data has been derived from crash tests (Col. 1 lines 46-57, col. 2, lines 11-15 and lines 60-66, and col. 5 lines 52-62).

Allowable Subject Matter

Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: None of the cited prior art either teaches or implies that a threshold other than the threshold used for triggering a restraining arrangement should be used in determining that an impact sensor or control unit of the triggering device is not suitable for operation and should be replaced.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 4,958,851 to Behr et al. for a changing threshold; U.S. Patent No. 5,387,819 to Ueno et al. for a sensor incorporating a diagnostic section; U.S. Patent No. 5,424,583 to Spies et al. for a triggering device with variable thresholds; U.S. Patent No. 5,749,059 to Walton for a triggering device with on-going diagnostics; U.S. Patent No. 5,809,439 to Damish for tracking multiple impacts; U.S. Patent Pub. No. 2002/0161457 to Hershey et al for estimating the time to failure; and U.S. Patent Pub. No. 2008/0137280 to Breed for modifying thresholds because of anticipatory sensors.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LIN B. OLSEN whose telephone number is (571)272-9754. The examiner can normally be reached on Mon - Fri, 8:30 -5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Black can be reached on 571-272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lin B Olsen/
Examiner, Art Unit 3661

/Thomas G. Black/
Supervisory Patent Examiner, Art Unit 3661